RRR.
PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH.
MAY 6 '47

HIGHER EDUCATION

SEMIMONTHLY PUBLICATION OF THE HIGHER EDUCATION DIVISION
UNITED STATES OFFICE OF EDUCATION, FEDERAL SECURITY AGENCY

VOL. III. NO. 18 WASHINGTON, D. C. MAY 15, 1947

General Education at a State College With Technologic Traditions

By HOWARD C. RATHER*

MICHIGAN STATE COLLEGE was established in 1855 as the first of the State colleges of agriculture. Under provisions of the Morrill Act, signed by President Lincoln, it became one of the Nation's land-grant colleges and added military science and the mechanic arts (engineering) to its curriculum. Later, work was added in home economics and veterinary medicine. After 1920 there was established an applied science division, which—in 1944—was combined with liberal arts, to make up the School of Science and Arts. Also, in 1944, various curricula, including physical education, business administration, public administration, social service, police administration, and hotel administration, were placed together for administrative purposes in a School of Business and Public Service.

The original purpose of Michigan State College and the nature of the various curricula added since, have served to give the institution a strong technical tradition. It has long given emphasis to functional learnings. Through its extension service in agriculture and home economics, and by means of other adult educational programs, it has been close to the interests of the people. Its oldest tradition and foremost objective has been to do all in its power to understand the needs of the people and to serve them with a useful educational program.

Ideas Regarding Useful Learnings

The founders who prepared the charter under which the old Agricultural College of Michigan was organized stressed the use, understanding, and appreciation of the English language, and included "Political Economy" and "Natural Philosophy" in the curriculum, along with surveying and leveling and the more strictly agricultural subjects. The first president of this pioneering institution was a graduate of Harvard.

Michigan State College still retains its pioneering spirit and traditions that its learnings should be useful.

The following learnings are considered not only useful, but also fundamental to a sound educational experience for all Michigan State College students: To be able to write and speak clearly, concisely, and effectively, and to be able to understand, appreciate, and evaluate critically the written and spoken word; to know something of the biological and physical sciences, not merely from a professional's viewpoint, but more particularly in respect to their impacts on everyday living and thinking; to have an interest in, and a knowledge of, personal, family, social, and civic affairs; to be acquainted with facts of history, particularly the history of selected periods most significant in relation to the world of today; to have an appreciation of cultures, past and present, expressed in literature, music, and art.

Development of a Basic Education Program

In order that all of its students might share in this core of learnings, Michigan State College in 1944 established its Basic College unit. This unit resulted from a series of activities and deliberations which had extended over several years. In the Basic College are enrolled all freshmen and sophomores in the entire institution. It is administered by a dean, coordinate in rank with the deans of the

Dean of the Basic College, Michigan State College of Agriculture and Applied Science.

738295—47

schools in which students complete their degree programs in the many special curricula which give Michigan State College all the characteristics, problems, and opportunities of a large university.

The Basic College includes seven departments, each responsible for the development and teaching of a broad comprehensive course that cuts across traditional departmental lines for the selection of its subject matter. Some of the Basic College department heads and approximately 25 percent of the staff members are in positions of dual responsibility, holding rank and teaching courses in one of the upper schools as well as in the Basic College. The remaining members of the staff do all their teaching and have all of their responsibilities in the Basic College, a feature that can be successful only at an institution that recognizes good teaching and demonstrates an interest in the improvement of teaching with rewards in salary, rank, and professional advancement fully equal to those granted for research, writing, or any other educational activity. The Basic College program has four objectives, which are explained in the following four sections.

General Education

The first objective of the Basic College program is to undergird the training of the specialist with a broad foundation of general education; in other words, to provide a common core of educational experience that shall be shared by all students, regardless of their special interests. Such a program is not in conflict with effective specialization for those students who require that type of intensive training in junior, senior, and graduate years. There is recognition of the need on the part of some members of society for highly specialized training. Also there is recognition of the fact that no one ever knew too much about his special field of interest. The Basic College program is designed to make sure that no undergraduate at Michigan State College follows a specialized program so intensively that in the end he knows too little of the relation of his own specialty to other activities and to the needs of society as a whole. It is designed to build specialized training, where desirable, on a broader foundation. It is designed to give each student—whether he be an eventual specialist or not—the opportunity for knowledge, skill, understanding, appreciation, and thinking in diverse ways, so that he may develop as a well-rounded individual, capable of adjustment to changing conditions; capable not only of rendering service on a job, but also of utilizing effectively those nonwork, nonsleep hours that constitute so important a part of the good life.

The seven basic courses that lay the foundation for the general education are: Written and spoken English, biological science, physical science, social science, effective living, history of civilization, and literature and fine arts.

All students must take written and spoken English and four of the other basic courses, including either biological or physical science, either social science or effective living, and either history of civilization or literature and fine arts. The fact that only five of the seven basic courses are required has been questioned. This requirement is in part a practical compromise with the needs emphasized by those responsible for training in certain special or technical fields, for example, music or engineering. It is only partially a compromise, however, for most students in their fields of special interest take work comparable to that which they do not cover in their five basic courses. An engineering student at Michigan State College does not take the basic course in physical science because his introductory work in mathematics, physics, and chemistry adequately covers this area. He does take five other basic courses, so that his completed program actually includes at least six of the seven basic areas.

Some hold that an organization of this type tends to end general education with the end of the sophomore year. They would prefer either of two other types of organization: (1) The introduction of certain general-education courses throughout the four undergraduate years, or (2) a synthesis of general education at the end of the college program. Either might be perfectly feasible at a strictly liberal arts college. The author is not prepared to answer that. But merely to synthesize general education at the end of a 4-year program for all students at any institution that has strong professional and technical divisions would find a substantial percentage of the students with no previous general education to use as material for synthesis. The continuous core of general education throughout the 4 years may have much merit, but it encounters the practical difficulties in technical divisions of finding room in junior and senior programs heavily loaded with advanced courses required for specialization.

The operation of the Basic College program as here outlined does not preclude entirely the advantageous features of either of the other two types of organization, mentioned above, for introducing general education into the curriculum. It does

guarantee that all students shall experience vital foundational courses in general education. It by no means assumes that general education stops with the sophomore year or, for that matter, that all education stops with the senior year. It provides a foundation on which a student may continue to build not only by further formal study in college, but by continued study and an intelligent evaluation of experience throughout life.

Not the least of the advantages of this program is the fact that students in agriculture, forestry, engineering, business, home economics, the sciences, and the liberal arts rub elbows with one another, exchange viewpoints and experiences, and share in common the broadening influences of these basic general education courses. Also, and this feature is doubtless most feasible in the larger institutions, the responsibility for starting all students on a program of general education in the Basic College is the prime responsibility of staff members interested and trained in general education, rather than a secondary responsibility of persons whose major interests lie elsewhere.

Improvement of Counseling

The second objective of the program is to give students an opportunity while enrolled in the Basic College to choose their field of special interest in the light of far more information about their own interests, aptitudes, and abilities than was formerly the case. This does not mean that students must wait 2 years before making such a decision. Many have established a field of interest before coming to college. The Basic College does not delay contact with that field, but, in fact, provides the freshman opportunity for beginning specialized study immediately. The five required basic, general-education courses take up a little less than half the student's time during his freshman and sophomore years. The other half is available for the introductory courses in engineering, agriculture, home economics, business, music, art, or whatever program the student may wish to choose. That makes for self-guidance. A student may start in engineering and find he has no aptitude for mechanics or mathematics. His change to some other program while he is in the Basic College can be made simply and easily, to take effect at the beginning of any term.

Or, a student may enter college with almost no idea of the kind of a program he wishes to follow. He too starts his basic courses. But he uses the other half of his time for introductory courses in one, two, or even three other fields. The basic courses, by nature, are somewhat exploratory. With these exploratory and try-out courses, plus advice from enrollment officers in the special fields and guidance from personal counselors who make use of aptitude, interest, and ability tests, personnel records and other counseling procedures, the student eventually chooses his program in the light of far more information than he had when he formerly had to choose that program the first day he entered college. At the present time, over 10 percent of the 8,350 students enrolled in the Basic College have indicated no curriculum preference, while the experience of the past 2 years indicates that fully 20 percent of those who have made a choice will change their preference during the year.

The instances of students discovering their real interests, and vastly improving their academic record as a result of this program, are piling up significantly in the 2½ years that the Basic College program has been in effect.

Needs of Students Not Completing Degree Programs

Not all students who start college can be expected to finish. The number who do not complete a 4-year program at Michigan State College is 60 to 65 percent of all who start. Possibly that percentage cannot be changed materially because of the many reasons why students drop out of college, only one of which is scholarship difficulty. However, the Basic College seeks to recognize in its program the needs of those who constitute the 65 percent who do not go on to qualify for a degree.

The basic courses of themselves give recognition of this fact. While fundamental in the sense that they provide a core of experience to which the student may add indefinitely, they are not introductory in the sense that they become meaningful only if further advanced courses are taken. Such introductory courses are perfectly appropriate in the training of a chemist, a botanist, or a mathematician, and have a definite place in the college curriculum. But the student who has had only traditional "introductory" college courses and then drops out, tends to have a feeling of frustration from his limited college experience.

The basic courses are of value for introductory purposes, and many of the specialized courses recognize this by revisions which avoid duplication and place them at a more advanced level. However, the basic courses are primarily devised for the nonprofessional. This must be so. In the biological science course in the fall of 1946, there were 4,400

students. Less than 100 were planning to major in one of the specialized biological sciences, such as botany or zoology. Approximately 900 had a professional interest in biology because they were following a preveterinary, premedical, or predental program, or were planning on agriculture or home economics. The other 3,400, roughly 75 percent of all who were enrolled, had strictly a nonprofessional interest in biological science, but were interested in the scientific approach to the solution of problems and in the impacts of biological science on themselves in their daily living. Such a course is centered on human biology, but draws on botany, zoology, bacteriology, entomology, genetics, and other phases of biology, because of their human implications.

At one time a student who took agriculture at Michigan State College started his program with a year's course in English composition, a year's course in general chemistry, a year's course in academic botany, two terms of mathematics, and two terms of agriculture. If he left college at the end of the first year, he had learned little that might help him make a living on his farm, or live in his community.

This practice was changed several years ago. Chemistry was moved to the sophomore year, and there was a marked improvement in the quality of work in this course by agricultural students who, having studied soils, crops, and livestock husbandry, had a greater appreciation of the relationships of chemistry to agriculture. In the end, these students carried as many courses in the fundamental sciences as ever.

To bring this program up-to-date, today the student who wishes to take agriculture, dually enrolls in the Basic College and the School of Agriculture. In his first year he takes 1-year courses in written and spoken English, biological science and effective living, one term courses in farm crops, soils, dairy husbandry, animal husbandry, and poultry husbandry. Should he drop out he will have participated in both general and technical education. He is better-equipped to go on with his responsibilities of making a living and contributing to the well-rounded life of his community.

If he continues this program for 2 years, including the five required basic courses, his attainments are recognized by the granting of a 2-year certificate in general agriculture. The principle, illustrated here with agriculture, is broadly applicable. Two-year certificates may be designated as "general," to denote a broad program in a more limited field, such as agriculture, home economics, or business. Where students have followed a definite 2-year program, the certificates designate the curriculum followed, such as secretarial science, insurance, retail merchandizing, food-service supervision, refrigeration, heating and ventilation, and several others.

Recognition of Students as Individuals

The fourth objective of the Basic College program is to recognize students as individuals, varying greatly in experience, education, interests, aptitudes, and competence. At first glance, it would appear that concentrating students in a relatively few required courses as freshmen and sophomores loses sight of these variables. It is true that Michigan State College has become a large University. Its highest prewar enrollment was 7,000. Today it has more than 13,400 students, 8,350 of them in the Basic College. Enrollments in the various basic courses range from 1,250 in literature and fine arts to more than 5,100 in written and spoken English. Biological science and social science each have more than 4,400 students. Yet, for the most part, sections have been kept fairly small and teaching loads reasonable. The sections in written and spoken English average 25 students; in the biological and physical sciences 30; in social science, history of civilization, literature and fine arts, and effective living, fewer than 50.

Personal conferences with students are important. They have been emphasized, especially in effective living, which is a personalized social science course that draws its material from modern philosphy, psychology, sociology in both rural and urban aspects, and home economics. It emphasizes such problems as personality development, marriage and family relations, vocational and avocational interests, and the place of the individual in his home, his family, and his community.

The sectioning of Basic College students on the basis of experience and competence has been given consideration. In written and spoken English, special sections have been set up for foreign students with language problems and for students who have special reading, writing, or speaking difficulties. Nearly 200 students enroll in the special reading clinic on a voluntary basis each term, on recommendation of their teacher or counselor; drop-outs have amounted to less than 10 percent. Special sections have been tried for the more advanced or

(Concluded on page 11.)

Regulation of the Professions in New York State

By HORACE L. FIELD and JOHN W. PAIGE*

THE UNIVERSITY OF THE STATE OF NEW YORK—unique in American education—antedates the formation of the Union and presents today an unusual record of educational leadership.

The functions of the Regents of the University, which in 1787 involved resolutions concerning the collection of fees and mending of windows for Columbia College, now encompass the full scope of elementary, secondary, higher, and professional education in New York State.[1]

Medicine, in 1890, was the first profession to come under regulation by the Regents. Since that date have been added veterinary medicine, dentistry, certified public accountancy, nursing, pharmacy, osteopathy, optometry, certified shorthand reporting, podiatry, architecture, dental hygiene, professional engineering, land surveying, physiotherapy, and—most recently—ophthalmic dispensing. In addition, the Regents have certain responsibilities with regard to preprofessional requirements in embalming and, in cooperation with the Court of Appeals and the State Board of Law Examiners, important functions in the field of law.

Accreditation of Institutions

Since the beginning of the twentieth century, the State Education Department, through its Commissioner of Education appointed by the Board of Regents, has been evaluating professional courses on the basis of definite minimum standards set by the Board of Regents. This procedure has been necessary since all the statutes governing the professions in New York State contained—among other provisions—a uniform requirement which stated that every applicant for admission to a professional school or a professional licensing examination in New York State must have completed the preliminary and professional requirements as fixed by statute and by the regulations of the Commissioner of Education.

Naturally these minimum requirements have been steadily increasing in each profession. For example, the preliminary education requirement for admission to the professional study of dentistry in 1902 was "three years of work in an approved secondary school." This has been increased to the present requirement of 2 years of college study in a "registered college of liberal arts and science," including an "approved course in English and the sciences." In 1902 the minimum professional requirement in dentistry was the completion of a "three-year course in a registered dental school." This has been increased to a 4-year course in a registered dental school. Similar changes have occurred in most of the professions falling under the jurisdiction of the University of the State of New York.

In accord with the requirements of the statutes governing the various professions, the University, through its executive officer, the Commissioner of Education, became one of the earliest national accrediting agencies of higher institutions in the United States. It set up minimum standards which have been revised from time to time for the registration of college curricula and professional schools. Its list at first consisted of colleges of the liberal arts and sciences, medical schools and law schools; gradually it expanded until it now includes over 600 higher institutions in the United States and Canada.

Foreign schools of higher learning have never been officially registered, but the record of each applicant from a foreign school is evaluated on an individual basis. In dentistry, for example, after a careful study of dental education in Europe, the Department determined that the maximum that should be granted for graduation from any dental school in Europe was 2 years of predental credit and 2 years of professional credit. Each foreign applicant would be obliged, therefore, to enter a fully registered dental school in this country and complete at least 2 years of satisfactory dental study and obtain a D. D. S. degree before he could gain admission to the New York dental licensing examination. The same general procedure of individual evaluations is followed in connection with all applicants who have completed their education in a foreign country and wish to obtain a professional license in New York State.

*Dr. Field is chief and Dr. Paige is supervisor, Bureau of Qualifying Certificates and Professional Examinations, New York State Education Department.

[1] For historical backgrounds, *see* Harlan H. Horner, *The State and Higher Education*, University of the State of New York Bulletin No. 1162, April 15, 1939.

Examinations for Licensure

In each of the professions under the jurisdiction of the University of the State of New York there is a board of professional examiners appointed by the Board of Regents on recommendation of the Commissioner of Education. Among the duties of each board is the preparation of question papers for each of the professional examinations offered. These examinations in each profession are usually given two or three times each year in several centers in the State.

The question papers are submitted to the Department by each professional board and after being edited are printed in a basement printing plant in the Department behind locked doors. After being printed, they are delivered by an inside elevator to a locked examination room where they are counted and placed in sealed envelopes marked to be opened at an appointed day and hour. These papers are sent in locked chests to the various centers several days before an examination. A representative of the Department is in charge at each center where professional examinations are scheduled. The answer papers—which are identified only by numbers assigned to candidates—are checked and bundled each half day and placed in the locked chest and forwarded from the center to the Department. The papers from all the centers are then assembled and those in each subject forwarded to the examiner of that particular subject for rating. Each examiner sends his rating sheets and papers to the Secretary of the particular board who in turn makes up a Secretary's report of each examination and submits it to the Chief of the Bureau of Qualifying Certificates and Professional Examinations in the Department. A form letter is then sent to each applicant giving him information in regard to the grade, or mark, he obtained in the examinations.

As indicated by this general outline of procedure, every precaution is taken to make certain that there is no leakage of information as to the questions to be given in any particular examination and that no candidate gives or receives aid while taking the examination. Experienced proctors are employed to supervise each examination, one proctor being provided for every 25 to 30 candidates. If any one is detected talking to another candidate while the examination is in progress, or is found to have brought in helps of any kind, he is immediately dismissed from the examination, and none of the papers written during the week are considered. If the violation is flagrant, the candidate is barred from any subsequent examination for at least 1 year.

Endorsement of Licenses From Other States

The New York State Education Department does not have actual reciprocity with any other State in any of the professions under its jurisdiction. In most of the statutes governing the various professions, however, there is a provision for endorsement of a license earned on the basis of a written examination in another State, provided that a certain amount of professional experience was completed subsequent to the earning of the license in the other State, and provided that the applicant had met the full preliminary and professional requirements of New York State at the time when the license was granted in the other State. One other provision requires proof that the written licensing examination taken in the other State was the full equivalent of the licensing examination in this State.

Biennial Registration

Most of the professional statutes require that licensees shall register biennially before a fixed date with the Department provided that they expect to practice their profession in the State. A roster of licensees so registered is printed and distributed. The main purpose of this biennial registration is to protect the public from practice by unlicensed individuals. State-wide registration does not eliminate all illegal practice but does reduce it to a minimum. The statutes of New York State contain provisions and machinery for investigation and conviction for illegal practice of the various professions.

The Past—the Future

In seeking to maintain high standards of professional education and professional practice, the University of the State of New York has emphasized objectives and methods which could win the willing support of the institutions and professional groups within the State. Future accomplishments will be dependent to a large extent upon the cooperative efforts of all agencies—local, State, and national—concerned with the maintenance of desirable professional standards.

Correction

In the fourth paragraph of the article, "Radio Degree," HIGHER EDUCATION, March 1, 1947, page 11, the station letters WLW and WSAI should be substituted for WKN and WSKI, respectively.

Science Foundation Legislation

By HENRY H. ARMSBY*

SEVERAL BILLS proposing to establish a National Science Foundation[1] have been presented to the Eightieth Congress, the functions of which shall be to develop a national policy for scientific research and scientific education, to initiate and support scientific research and development, to enable young men and women of ability to receive scientific training, to correlate the scientific research and development programs of the several Government agencies, and to foster the interchange of scientific information among scientists in the United States and foreign countries.

Previous Congressional Activity

During the Seventy-ninth Congress, subsequent to the appearance of the "Bush Committee" report, entitled "Science, the Endless Frontier," several bills were introduced in both Houses which had the same basic objectives as the current proposals. Extensive hearings were held before a subcommittee of the Senate Committee on Military Affairs, which reported to the Senate December 21, 1945.

The Senate late in the session passed S. 1850, a bill which incorporated some of the provisions contained in several of the earlier bills which had been before the Senate at the time of the hearings.

Similar legislation was before the House of Representatives during the Seventy-ninth Congress. The House Committee on Interstate and Foreign Commerce referred this measure, H. R. 6448, Seventy-ninth Congress, to a subcommittee. The subcommittee held an extensive hearing and reported the bill favorably to the full committee late in the session. At that time all proponents of the legislation, both in the House and the Senate, agreed it was too late to bring the measure up on the floor of the House. They agreed, therefore, to let it go over until the Eightieth Congress, when it would have early attention.

Articles bearing on this legislation were published in HIGHER EDUCATION, October 1 and 15, November 15, and December 1, 1945; and February 1, and May 1 and 15, 1946.

Specialist in Engineering Education

[1] Reported in HIGHER EDUCATION, April 15, 1947.

Current Legislative Proposals

Two groups of bills are before the Eightieth Congress. One group is patterned after bills of the Seventy-ninth Congress, while another group contains provisions that are materially different.

H. R. 942 (Celler) is the same as S. 1850 of the Seventy-ninth Congress as originally introduced, while S. 525 (Thomas of Utah) is the same as the version of S. 1850 which was passed by the Senate. In the Thomas bill the provision for a Division of Social Sciences, which is included in the Celler bill, is eliminated, as is the provision for "such additional divisions, not to exceed three in number, as the Administrator may from time to time establish," thus limiting the Foundation to seven specified divisions. Social science is not named in the Thomas bill as a field in which scholarships and fellowships may be awarded. However, the bill would permit such awards in social science, since it reads "including but not limited to" the fields named. In addition, the Thomas bill prohibits employing or awarding a scholarship or fellowship to any person "who advocates, or who is a member of any organization which advocates, the overthrow of the Government of the United States by force or violence . . .," and provides that no atomic-energy research shall be supported without the approval of the Atomic Energy Commission. With these exceptions the Thomas bill and the Celler bill duplicate each other.

The second group consists of five identical bills: one in the Senate—S. 526 (Smith, Cordon, Revercomb, Saltonstall, Magnuson, and Fulbright); and four in the House of Representatives—H. R. 1815 (Case), H. R. 1830 (Mills), H. R. 1834 (Priest), and H. R. 2027 (Hays). These bills have the same fundamental objectives as the Thomas and the Celler bills, and contain many of the same provisions. They differ from those two bills chiefly in their provisions with respect to: (1) Organization of the Foundation, (2) its method of allocating funds, (3) inclusion of the social sciences in the fields to be covered, and (4) disposition of patents resulting from its activities.

The Interstate and Foreign Commerce Committee of the House of Representatives held public hearings

on March 6 and 7, 1947, on the five bills before the House, at which these points of difference formed the chief items of discussion. The testimony presented at the hearings is scheduled for publication at an early date.

Twenty-two persons testified before the Committee and several others submitted written statements for inclusion in the record. These persons constituted a comprehensive representation of scientific and educational organizations which are interested in the establishment of a science foundation, and of several agencies of the Federal Government, including the War and Navy Departments, Public Health Service, Atomic Energy Commission, Joint Army-Navy Research Board, National Advisory Committee for Aeronautics, and National Academy of Science. Also represented were several industrial firms and the American Federation of Labor.

Opinions on Need for a Foundation

Frank Jewett, president of the National Academy of Science, who was one of the witnesses, stated that in his opinion the establishment of the proposed Foundation is undesirable. Dr. Jewett felt that certain kinds of research, such as problems of agriculture, national defense, geological surveys, and some others, must by their very nature be supported by the Federal Government; but that in general basic research should be supported by voluntary contributions from interested persons, who channel their funds into the particular fields in which they are interested; rather than be supported by taxation, which removes the personal interest of the citizens and tends to destroy the natural balance of the national economy by giving one field of human activity a direct, unnatural advantage over others, thereby creating pressures for comparable special legislation to favor other special groups.

All the other witnesses either urged the need for Federal support of basic research or confined their discussions to details of the bills under consideration by the Committee.

Proposed Organization of the Foundation

The Thomas and Celler bills provide for a single administrator, appointed by the President, and an advisory board of 9 members, also appointed by the President. The 5 identical bills provide for a foundation of 48 persons, appointed by the President, who shall choose from their own membership an executive committee of 9 members, who in turn shall select a director.

Three witnesses favored the single administrator and 8 expressed no opinion, stating that they preferred to leave the decision to experts in governmental administration, since they felt either plan could be satisfactory.

Eleven witnesses favored the plan calling for a board of 48, in some instances with slight modifications. They pointed out the advantages of combining the knowledge and judgment of specialists in many fields rather than placing responsibility for decisions on one man. Many felt, however, that a board of 48 would be so large as to make the Foundation unwieldy, and that the number 48 would immediately create pressures to have these persons represent the States, whereas they should be chosen to represent the fields of knowledge with which the Foundation will be concerned.

Several witnesses suggested that the members of the Foundation should be appointed by the President from panels submitted by the National Academy of Sciences, the National Research Council, the Engineering College Research Association, the Joint Army-Navy Research Board, and other scientific or educational organizations.

Allocation of Funds

The Thomas and the Celler bills specify that not less than 15 percent of the funds available for research shall be devoted to each of two proposed divisions of National Defense and Health-Medical Science. These bills also specify that not less than 25 percent of the funds available for research shall be apportioned among the States according to an objective formula and shall be used only in tax-supported colleges and universities; and that an additional amount of not less than 25 percent shall be expended in the facilities of nonprofit organizations without regard to State quotas or the tax-supported character of the organization.

The other five bills simply make it the responsibility of the Foundation to allocate funds in such a was as to "best realize the two objectives of (1) having the work performed by the organization or individuals, including Government agencies, best qualified by training and experience to achieve the results desired, and (2) strengthening the research staff of organizations, particularly nonprofit organizations, in the States and Territories and the District of Columbia."

The few witnesses who testified on fund allocation seemed to feel that the Foundation could be depended upon to make an equitable distribution of its

funds, that its hands should not be tied by too many restrictions, and that no distinction should be made between the tax-supported colleges and universities and those which are tax-exempt but not tax-supported.

Research in the Social Sciences

The Celler bill specifies a Division of Social Sciences; the five identical bills leave its creation to the judgment of the Foundation; while the Thomas bill limits research to the natural sciences, engineering and technology, and national defense.

Six witnesses favored the mandatory inclusion of social science; two felt the decision should be made by the Foundation; nine expressed no opinion; and five felt that research in this field is so different from that in the natural sciences that any Federal support of it should be the subject of separate legislation.

Patent Rights

The Thomas and Celler bills specify that all patents resulting from research sponsored by the Foundation are to become the property of the Federal Government, with certain exceptions which in the opinion of several witnesses would be difficult to administer. The five identical bills propose to continue present patent policies.

All the witnesses who testified on this point favored the continuation of present patent policies. Several felt that if changes in these policies seem desirable, they should be the subject of careful study and of special legislation, rather than being included in this legislation.

It was also pointed out by some witnesses that true basic research seldom produces patentable devices, which generally result from applied or industrial research. They felt, therefore, that if the Foundation puts its major emphasis on basic research—as it was generally agreed it should do—its patent problems would be few, or possibly nonexistent.

Scholarships and Fellowships

There seemed to be unanimous agreement among the witnesses that the chief requisite to satisfactory progress in science is not money but men, and that a highly important part of the proposed legislation, therefore, is the program—contained in all the bills—for finding and developing competent scientific research workers through federally supported programs of scholarships and fellowships. All the bills also provide for a register of scientific and technical personnel and a clearing house for information concerning such persons.

It was pointed out by several witnesses that it is difficult for many college students to decide definitely what their life work is to be, and that the needs of society can best be served by promoting and encouraging good scholarship in any field of study. As to graduate fellowships, the witnesses appeared to consider that the Foundation might well limit its support to the fields in which it is authorized to sponsor research.

Other Provisions

The consensus of the witnesses was that the National Science Foundation should supplement but not replace existing programs of research by Government agencies. All the bills provide for an interdepartmental committee on science to correlate the research activities of Government agencies. All the bills also provide for international cooperation through the Department of State.

The witnesses also agreed that the utmost academic freedom should be left to the individuals or institutions with whom the Foundation might make contracts for research projects, and that the major emphasis of the Foundation should be on basic research rather than on development or industrial research. Although several witnesses pointed out that it is impossible to draw a sharp dividing line between the two fields, they agreed that in some cases a project in basic research would directly and necessarily lead to a certain amount of practical development work which should properly be undertaken by the Foundation.

NOTE: (April 9) Since this article was written, the Senate Committee on Labor and Public Welfare on March 26 reported S. 526, recommending a reduction of the Foundation from 48 to 24 persons, and a few other minor changes. An amendment was offered on the floor to substitute essentially the provisions of S. 525 with respect to apportionment of funds among the States. The bill will be considered by the Senate at a later date.

Research in Higher Education

ONE OF THE MAJOR FUNCTIONS of the Division of Higher Education of the U. S. Office of Education is research in problems of higher education. The following research projects are now in progress: (1) A survey of curricula of less than degree length in land-grant colleges and universities, in cooperation with

the Association of Land-Grant Colleges and Universities; (2) an analysis of trends of student fees in land-grant colleges and universities; (3) preparation of a series of reports on improvement of teaching in dental schools, in cooperation with the American Association of Dental Schools; (4) preparation of a recruiting and information manual for prospective teachers; (5) a large-scale project on the education of adult illiterate Negroes, including the development of teachers, the preparation of materials of instruction, and the demonstration of effective teaching techniques; (6) an analysis of engineering college enrollments, to follow up the recent study of supply and demand in the engineering profession, in cooperation with the American Society for the Advancement of Engineering Education; and (7) a study of practices in the administration of faculty salaries in colleges and universities.

Congressional Activities of Interest to Higher Education

RESOLUTIONS AND BILLS introduced in the Eightieth Congress between February 26 and March 19, which would seem to be of special interest to colleges and universities, are listed herewith. Those introduced prior to February 26 were listed in HIGHER EDUCATION, April 15, 1947. Their progress is here reported.

Single copies of bills, resolutions, and committee reports can usually be secured from members of the Senate or House of Representatives.

Each resolution or bill is reported by number, followed by the name of the Congressman or Senator who introduced it.

VETERANS' EDUCATION

(1) To increase permissible earnings under the GI Bill: S. 914 (Stewart); H. R. 2527 (Morrison).

(2) To give veterans allowances for dependent brothers and sisters: S. 855 (McFarland).

(3) To count terminal leave as service in calculating benefits under GI Bill: H. R. 2320 (Lodge); H. R. 2366 (Patterson).

(4) To provide educational benefits for seamen of the Merchant Marine: H. R. 2357 (Larcade).

(5) Relating to institutional on-farm training for veterans: H. R. 2317 (Meyer).

FEDERAL AID TO EDUCATION

S. 786 (Langer); H. R. 2525 (Morrison); H. Res. 119 (Byrnes).

EDUCATIONAL AND HOUSING FACILITIES

S. 772 (Bushfield); S. 817 (Stewart); S. 846 (Hill); S. 854 (O'Mahoney); H. R. 2473 (Johnson); H. R. 2497 (Schwabe).

OTHERS

To provide old-age and survivors insurance for employees of educational and other organizations: H. R. 2448 (Lynch).

Progress as of March 19, 1947, on Bills Previously Listed

VETERANS' EDUCATION—H. R. 246 has been approved by the Committee on Veterans' Affairs and referred to the House of Representatives. This bill proposes to increase the permissible earnings of veterans receiving on-the-job training. Uncompleted hearings have been held by the House Committee on Merchant Marine and Fisheries on H. R. 476, which proposed a GI bill for seamen of the Merchant Marine.

RESEARCH.—The House Committee on Interstate and Foreign Commerce held hearings on the Science Foundation bills, March 6 and 7. The hearings are discussed elsewhere in this issue.

NEW FEDERAL DEPARTMENT.—Hearings are in progress before the Senate Committee on Expenditures in Executive Departments on S. 140 and S. 712, which propose the establishment of a Department of Health, Education, and Security.

Other bills are still before the various committees of the Senate and House of Representatives, no action having yet been taken on them.

Orientation Course for Foreign Students

AN EXPERIMENTAL COURSE to help students from abroad understand the American way of life is being offered for the first time during the current term at New York University. It consists of a series of informal sessions where the 600 foreign students enrolled in the University may get answers to such practical problems as how to open a bank account, how to introduce people, how to secure medical and dental services, how to make air and train reservations, and how to read a newspaper. The over-all purpose of the course, which is offered free to all foreign students, is to orient the student not only to life in New York University, but to American life in general. The class meets on Wednesdays from 4 to 6 p. m.

General Education

(Continued from page 4)

more able students with promising results, but much experimentation is still needed.

Comprehensive Examinations

The abilities of students with greater competence, experience, or will to do independent study, are recognized by examination. The attainments of each student in the basic areas are measured by comprehensive examinations constructed cooperatively by an independent board of examiners and a committee from each department. These examinations measure not merely factual information, but knowledge and understanding of principles, the ability to apply information, to think, to discriminate, to organize materials, and to render sound judgments.

Ordinarily, a student takes the comprehensive examination at the end of the regular three terms' work in a course. He may take a longer time for preparation because of low grades or by approved choice. By special permission, he may also take the comprehensive examination in less than three terms, in some cases with no enrollment in the course at all, and if his grade is satisfactory he gets full credit in the course. Standards for passing comprehensive examinations were first based on the performance of the students who had taken the full three terms of a basic course. Gradually more absolute standards are being developed and improved.

The system has succeeded in giving recognition to competence. Selected students with broad experiences or ability to do independent study have done exceptionally well on the comprehensive examinations—better than those who have relied solely on class work. During the 1945–46 year, approximately 15 percent of the comprehensive examinations passed were by students who had done one or two terms of independent study. Such students move on into more advanced work.

In Conclusion

The Basic College program is new. It is by no means fixed, and never should be. Its courses must be subject to constant revision, its staff must be alert to the advantages of in-service training and off-campus training. Many of its impacts will have to be judged in the years ahead when in large numbers the students who have participated in this program carry on their responsibilities as citizens.

NEW PUBLICATIONS

Government Publications

How To Obtain

(*1*) *Cost Publications: Send request, enclosing remittance (check or money order), to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.*

(*2*) *Free Publications: Request direct from the agency issuing them.*

From U. S. Office of Education

Engineering, Science, and Management War Training—Final Report, by Henry H. Armsby. Washington, U. S. Government Printing Office, 1946. 168 p. (Bulletin 1946, No. 9) 35 cents.

A brief factual outline, in two main parts, with a bibliography, of the college-level, war-training program sponsored by the U. S. Office of Education, under which more than two hundred colleges and universities gave to nearly two million men and women special intensive training for technical and scientific work in war industries and Government agencies. Part I consists of a narrative account of the program's origin and development, an outline of its principal operating policies and procedures, and a discussion of its contribution to the war effort and of the permanent educational values resulting from its operation. Part II is a technical section setting forth in greater detail the authorizations of Congress, the organization established to operate the program, and the general methods of administration employed, and outlining the principal appraisals made of the program during its life. Six tables of statistical data and three organizational charts are included.

Student War Loans Program—Final Report, by R. C. M. Flynt. Washington, U. S. Government Printing Office, 1946. 40 p. (Bulletin 1946, No. 14) 15 cents.

Describes the origin, administration, and contribution of the Student War Loans Program. Contains the basic documents and much detailed information in appendices.

Homemaking Education in Secondary Schools of the United States. Washington, U. S. Government Printing Office, 1947. 23 p. 15 cents.

Intended "to give the lay public of this country and visitors from other countries an understanding of the homemaking education program in the public secondary schools of the United States." Contains information concerning the general organization, objectives, content, methods of teaching, and equipment used in programs of homemaking education.

From Other Government Agencies

The following publications may be obtained free from the Office of Aviation Training, U. S. Civil

Aeronautics Administration, Commerce Building, Washington 25, D. C.

A Selected and Annotated Bibliography in Aviation Education for Guidance Counselors. November 1946. 10 p. mimeo.

A Selected and Annotated Bibliography on the Social, Political, Economic, and International Aspects of Aviation. December 1946. 65 p. mimeo.

A Selected and Annotated Bibliography of Recent Air-Age Education Textbooks. February 1946. 55 p. (Also includes standard texts that incorporate such materials.)

A Selected and Annotated Bibliography on the Professional Aspects of Aviation Education. February 1946. 55 p.

Aeronautical Periodicals. November 1946. 7 p. mimeo.

Non-Government Publications

Pamphlets

Engineering Education—Its New Responsibilities. Troy, N. Y., Rensselaer Polytechnic Institute. Undated. Unpaged.

A brief discussion of the relation of science and engineering education to intelligent citizenship. Contains pictorial material on the historical development of this, the oldest institute of engineering education in the United States, and sets forth its contribution to engineering science.

Higher Education in Canada, 1942–44. Published by authority of the Hon. James A. MacKinnon, Minister of Trade and Commerce. Ottawa, Edmond Cloutier, Controller of Stationery, 1946. 80 p. 35 cents.

Part II of the Biennial Survey of Education in Canada, 1942–44. Contains narrative and detailed statistical data on the various Canadian institutions of higher education.

Proceedings of the Twenty-third Annual Conference of the Presidents of Negro Land-Grant Colleges, 1945. Frankfort, Ky., Kentucky State College. Undated. 92 p.

A report of addresses and resolutions at the conference of this association, October 1945. The theme of the conference was "The Negro and Full Postwar Employment."

Report of the Acting President of Columbia University for 1946. New York, Columbia University. 81 p. (Bulletin of Information, 47th Series, No. 12, March 15, 1947.)

A statement of the operations of the University in 1946. Contains, among other subjects, a description of war research carried on by the University.

Books

Financing the Future of Higher Education, by Thad Lewis Hungate. New York, Bureau of Publications, Teachers College, Columbia University, 1946. 310 p. $2.60.

In this volume the controller of Teachers College, Columbia University, studies the question of financing higher education in relation to the financial support of education from elementary schools through the university. Among the special topics dealt with are the role of philanthropy, the role of fees in financing institutions of higher education, and principles of higher education finance. A feature of the book is the chapter entitled "Proposals for More Effective Financing of Higher Education."

Veterans Handbook and Guide, by Tracy E. Goodwin. Goodwin Publications, 1778 Fairmount Ave., Cincinnati 14, Ohio, 1946. 511 p. processed. $3.50, cloth; $3, paper. (The chapter on education (140 pages), entitled "Educational Opportunities for Veterans," also published separately and bound in paper. $2 for the separate publication.)

The six chapters deal with securing a job, temporary employment, conversion of the veteran's military job, educational opportunities, governmental aid, and reference aids.

Yankee Teacher: The Life of William Torrey Harris, by Kurt F. Leidecker. New York, The Philosophical Library, 1946. 648 p. $7.50.

Extensive biography of the man who served as U. S. Commissioner of Education from 1889 to 1906. Harris' contributions in the fields of philosophy and education, in both of which he was a preeminent leader, are described in considerable detail.

HIGHER EDUCATION

Published semimonthly from September through May, by the United States Office of Education. Its printing is approved by the Bureau of the Budget as required by Rule 42 of the Joint Committee on Printing. Prepared in the Division of Higher Education.

Managing Committee

Lloyd E. Blauch, *Chairman*

Henry H. Armsby — **Benjamin W. Frazier**

Ambrose Caliver — **Ernest V. Hollis**

● Publication Office: U. S. Office of Education
FEDERAL SECURITY AGENCY, Washington 25, D. C.

Subscription: 75 cents a year in advance (5 cents a single copy); to foreign countries, $1. For orders of 100 copies or more in bulk to one address within the United States, 25 percent discount is allowed. Orders with remittance should be sent to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

WATSON B. MILLER, Federal Security Administrator
JOHN W. STUDEBAKER, U. S. Commissioner of Education
JOHN DALE RUSSELL, Director, Division of Higher Education

U. S. GOVERNMENT PRINTING OFFICE: 1947